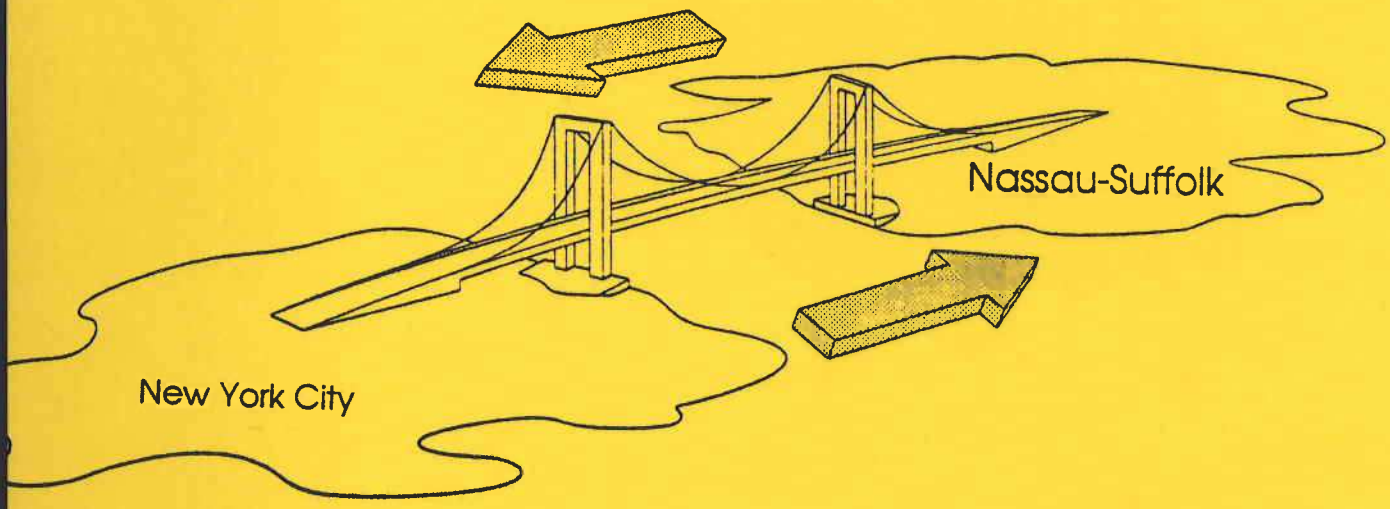
JOURNEY TO WORK



EXECUTIVE SUMMARY

Prepared by:
Long Island Regional Planning Board

JOURNEY TO WORK

EXECUTIVE SUMMARY

March 1995

Long Island Regional Planning Board
P.O. Box 6100
Hauppauge, NY 11788

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EXECUTIVE SUMMARY
Long Island Journey-to-Work Study

Introduction

During the 1980s, Long Island gained 250,000 jobs. This created the impression that Nassau and Suffolk Counties had become economically self-sufficient and that their economic linkages to New York City had diminished significantly. In fact, these linkages remain extremely important. There were almost 280,000 journey-to-work trips from Nassau-Suffolk to New York City during the week prior to the 1990 Census Survey. Moreover, in response to growing job opportunities on Long Island, there were more than 91,000 work trips from New York City to Nassau-Suffolk. With more Nassau-Suffolk residents working within Nassau-Suffolk than ever before, journey-to-work patterns within the Nassau-Suffolk labor market remain of paramount interest and importance.

This report summarizes research performed for the MTA Long Island Rail Road (LIRR) concerning journey-to-work relationships between Nassau-Suffolk and New York City and within Nassau-Suffolk based on 1990 Census data. It is important to note that the census data presented in this report refer only to reported journey-to-work trips made *in the week prior* to the 1990 Census survey. The Census data reflect trip flow and modal share estimates at a given point in time, namely the survey week. Because of this limitation, the Census numbers do not match the Long Island Rail Road's data concerning market size or modal share. Although both the LIRR and the Census are accurate for the type of information they collect, the LIRR-generated numbers should not be compared with the Census-generated numbers described

in this report.[1]

The findings presented in this report are particularly relevant given the requirements of the Clean Air Act. Nassau and Suffolk Counties have been designated as a "severe non-attainment area for ozone" under the 1990 Amendments to the Clean Air Act. To comply with the requirements of the Act, large Nassau-Suffolk employers, those with 100 or more employees, must significantly reduce single occupancy vehicle commuting during peak rush hours by November 15, 1996. This will entail additional carpooling as well as diversion of auto commuters to public transportation. The information developed in this report will support the implementation of the Clean Air Act on Long Island.

Journey-to-Work Trips
From Nassau-Suffolk to New York City

There were approximately 280,000 work trips from Nassau-Suffolk to New York City during the week prior to the 1990 Census. Of these, 269,000 journey-to-work trips terminated in Manhattan, Queens or Brooklyn. The number of work trips from Nassau-Suffolk to Manhattan, Queens and Brooklyn was virtually the same in both 1980 and 1990. However, journey-to-work trips from Nassau to Manhattan declined by more than 13,000 or about 13%,

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[1] The major differences between the LIRR-generated numbers and the Census statistics are as follows: The LIRR includes only full-time workers; the Census includes both full-time and part-time workers. The LIRR measures journey-to-work trips to Manhattan; the Census includes journey-to-work trips to all New York City counties. The LIRR measures commuting patterns of full-time workers during a typical or average week. Its surveys are not sensitive to atypical behavior. The Census measures any work in the week prior to the survey and, as such, is sensitive to atypical behavior. In addition, those who normally work in Nassau-Suffolk but travel to New York City on business during the census survey week, would be counted in the census figures but not in the LIRR figures.

while journey-to-work trips from Nassau to Queens increased by 9,400 or 16%. Journey-to-work trips from Suffolk to Manhattan and Queens increased slightly.

Table 1-1
Number of Journey-to-Work Trips, 1980, 1990

	COUNTY OF ORIGIN								
	NASSAU			SUFFOLK			TOTAL		
County of Destination	1980	1990	Net Change	1980	1990	Net Change	1980	1990	Net Change
Manhattan	110,317	97,205	-13,112	35,547	38,472	+2,925	145,864	135,677	-10,187
Queens	58,791	68,213	+9,422	24,124	26,605	+2,481	82,915	94,818	+11,903
Brooklyn	28,487	28,430	-57	11,641	9,730	-1,911	40,128	38,160	-1,968
Total	**197,595**	**193,848**	**-3,747**	**71,312**	**74,807**	**+3,495**	**268,907**	**268,655**	**-252**

Source: 1980 and 1990 Census Transportation Planning Packages

Manhattan remained the principal destination of Nassau-Suffolk work trips to New York City. Almost 136,000 Nassau-Suffolk residents traveled to work in Manhattan. Approximately 60,000 (44%) worked between 34th and 59th Streets, 34,500 (25%) worked below Canal Street, 19,400 (14%) worked between 14th and 34th Streets, 14,700 (11%) worked above 59th Street and 7,400 (5%) worked between Canal and 14th Streets. Approximately 27,000 work trips from Nassau-Suffolk to the midtown area between 34th and 59th Streets terminated east of Fifth Avenue adjacent to Grand Central Station. Between 1980 and 1990, the Wall Street area also became a much more significant source of jobs for Nassau-Suffolk residents. During the 1980's, work trips from Nassau County to the area below Canal Street increased from 8,000 to more than 24,000, a gain of 16,000. Work trips from Suffolk County to the Wall Street area also increased. By contrast, the number of Nassau work trips to the midtown area between 34th and 59th Streets declined by almost 13,000 and the number of Suffolk

travelers to this area remained unchanged between 1980 and 1990. *These findings underscore the potential usefulness of direct rail access from Nassau-Suffolk to Manhattan's downtown central business district.*

Of the almost 95,000 Nassau-Suffolk work trips to Queens, almost 19,000 (20%) terminated in the Kennedy Airport area, 20,400 (21%) terminated in the LaGuardia Airport-Long Island City area, and 10,300 (11%) terminated in the Jamaica area. Approximately 39% of the Nassau residents and 47% of the Suffolk residents employed in Queens worked in one of the two airport zones. Between 1980 and 1990, there were significant increases in work trips from Nassau-Suffolk to the LaGuardia Airport-Long Island City zone (+7,200 work trips) and to the Jamaica area (+4,000 work trips). These increases reflect substantial economic development in both zones during the 1980's. Approximately 19,500 Nassau-Suffolk residents, or half of all Nassau-Suffolk commuters to Brooklyn, worked in downtown Brooklyn in 1990.

Eleven heavily traveled corridors accounted for 56% of all work trips from Nassau County to Manhattan, Queens and Brooklyn in 1990. Numerically, the largest group, almost 25,000, traveled from Hempstead Town to the area between 34th and 59th Streets in Manhattan. There were also a substantial number of trips from Hempstead Town to the area below Canal Street, to Kennedy and LaGuardia Airports and to downtown Brooklyn. Work trip patterns from Suffolk to Manhattan, Queens an Brooklyn were more diffuse. The heaviest volumes occurred between the towns of Huntington, Islip, Babylon and Brookhaven and the midtown and downtown Manhattan central business districts.

Table 1-2
Work Trips From Nassau and Suffolk Counties to Manhattan, Queens and Brooklyn, 1990: Selected Origins and Destinations

	Nassau	
Town of Origin	**Zone of Destination**	**Number of Work Trips, 1990**
Hempstead	34th to 59th St., Manhattan	24,930
Hempstead	Below Canal St., Manhattan	13,535
Hempstead	Kennedy Airport-Rockaways	9,745
North Hempstead	34th to 59th St., Manhattan	9,698
Hempstead	Downtown Brooklyn	8,638
Oyster Bay	34th to 59th St., Manhattan	8,587
Hempstead	LaGuardia Airport-Long Island City	7,907
Hempstead	Above 59th St., Manhattan	6,571
Hempstead	Bay Ridge-Borough Park, Brooklyn	6,505
Oyster Bay	Below Canal St., Manhattan	6,495
Hempstead	14th to 34th St., Manhattan	6,457
	Total	**109,068**
	Percent of all Work Trips	**56%**

Table 1-2 (Cont'd)
Suffolk

Town of Origin	Zone of Destination	Number of Work Trips, 1990
Huntington	34th to 59th St., Manhattan	4,428
Islip	34th to 59th St., Manhattan	3,690
Babylon	34th to 59th St., Manhattan	3,385
Brookhaven	34th to 59th St., Manhattan	3,037
Huntington	Below Canal St., Manhattan	2,560
Islip	Below Canal St., Manhattan	2,293
Babylon	Below Canal St., Manhattan	2,178
Babylon	LaGuardia Airport-Long Island City	1,961
Islip	Kennedy Airport-Rockaways	1,660
Islip	Downtown Brooklyn	1,642
Brookhaven	Below Canal St., Manhattan	1,607
	Total	**28,441**
	Percent of all Work Trips	**38%**

Source: 1990 Census Transportation Planning Package

Nassau-Suffolk residents employed in Manhattan generally traveled by rail. The extent of rail use varied with the specific zone of destination within Manhattan. For example, 66% of North Hempstead residents who worked in the area between 14th and 34th Streets traveled by rail as did 73% of Hempstead residents employed between 34th and 59th Streets, 75% of Oyster Bay residents employed below Canal Street or between 34th and 59th Streets and 77% of Huntington workers traveling to the areas below Canal Street and between 34th and 59th Streets.

Table 1-3
Percent Rail Use for Work Trips From Selected Long Island Towns to Selected Manhattan Zones of Destination, 1990

	TOWN OF ORIGIN						
Zone of Destination	**North Hempstead**	**Hempstead**	**Oyster Bay**	**Babylon**	**Brookhaven**	**Huntington**	**Islip**
Below Canal St.	63	66	75	76	62	77	65
Canal to 14th St.	48	57	70	81	56	67	67
14th to 34th St.	66	70	73	75	75	73	74
34th to 59th St.	65	73	75	78	67	77	76
Above 59th St.	45	55	47	71	54	62	50
Manhattan	**61**	**68**	**73**	**77**	**65**	**75**	**70**

Source: 1990 Census Tranpsortation Planning Package.

By contrast, the overwhelming proportion of travelers from Nassau-Suffolk to Queens and Brooklyn drove alone or carpooled to work. Among those employed in Queens, 93% of those from North Hempstead, 92% of those from Hempstead, Oyster Bay and Huntington, and 84% of those originating in Babylon, Brookhaven and Islip traveled by car, and most drove alone. Among Queens-bound travelers, only 13% of those from Hempstead and North Hempstead, 15% of those from Huntington and Oyster Bay, 12% of those from Babylon, 17% of those from Brookhaven and 18% of those from Islip carpooled.

Among travelers to Brooklyn job sites, 84% of North Hempstead residents, 81% of Hempstead residents, 78% of those from Oyster Bay and Islip, 75% of those from Babylon, 78% of those from Brookhaven and 72% of those from Huntington traveled by car. Only 16% of those originating in Hempstead and North Hempstead carpooled as did 13% of those from Oyster

Bay, 18% from Babylon, 20% from Brookhaven, 14% from Huntington, and 17% from Islip. *Clearly, the failure to achieve significant levels of carpooling or public transit utilization for journey-to-work trips from Nassau-Suffolk to Brooklyn and Queens is partly responsible for existing road congestion during peak morning rush hours. It follows that more extensive use of carpools and public transit could alleviate some of this congestion.*

Rail use for work trips from Nassau-Suffolk to Queens and Brooklyn was negligible except for commutation from selected towns to Jamaica, Queens and downtown Brooklyn. For example 25% of Oyster Bay residents employed in the Jamaica area and 28% of those employed in downtown Brooklyn commuted by rail as did 61% of the Babylon residents employed in the Jamaica area and 29% of those employed in downtown Brooklyn. There is relatively good rail service to both these areas. *More extensive use of the Long Island Rail Road, particularly among work travelers from Nassau to Queens, could go a long way toward mitigating road congestion during peak morning rush hours.*

Table 1-4
Percent Auto Use for Work Trips from Selected Long Island Towns to Selected Queens and Brooklyn Zones of Destination, 1990*

	Town of Origin						
Zone of Destination	**North Hempstead**	**Hempstead**	**Oyster Bay**	**Babylon**	**Brookhaven**	**Huntington**	**Islip**
Bayside-Little Neck	98%	94%	89%	86%	92%	100%	75%
Queens Village-Glen Oaks	95	93	98	96	83	100	86
Flushing	93	94	91	86	88	94	87
Laurelton-Springfield Gardens	91	95	99	96	87	81	97
Kennedy Airport-Rockaways	92	93	96	99	86	95	94
LaGuardia Airport-LI City	93	92	91	84	86	93	87
Woodhaven-Richmond Hill	91	94	93	88	96	100	92
Jamaica-Hollis-St. Albans	89	84	75	39	73	62	63
Forest Hills-Kew Gardens	93	90	95	86	95	83	80
Jackson Heights-Elmhurst-Corona	95	92	92	84	85	93	88
Maspeth-Middle Village	97	94	98	86	87	91	83
Total Queens	**93**	**92**	**92**	**84**	**84**	**92**	**84**
Flatbush-Canarsie	90	90	93	93	80	82	87
Downtown Brooklyn	81	75	69	71	76	71	75
Bay Ridge-Borough Park	86	86	80	76	81	70	77
Total Brooklyn	**84**	**81**	**76**	**75**	**78**	**72**	**76**

*Represents those who drove alone and carpooled
Source: 1990 Census Transportation Planning Package

The data suggest that rail use was significantly higher for peak work trips than for non-peak work trips. Peak trips are defined by the Census as departures between 6:30 A.M. and 8:29 A.M. Whereas 75% of peak trips from Nassau to Manhattan were made by rail, the

incidence of rail use declined to only 51% for non-peak trips from Nassau to Manhattan. Conversely, the proportion of Nassau residents who drove alone or carpooled to Manhattan increased from 17% for peak trips to 39% for non-peak trips. The use of the railroad for non-peak departures from Nassau-Suffolk declined for all Manhattan zones of destination. It would appear that travelers revert to auto use, even for work trips to Manhattan, once the morning rush hour is over and road congestion abates. This attests to the ongoing "love affair" between suburban residents and their cars.

The travel times associated with various modes of travel influence the mode chosen. The narrower the time gap between public transit and auto travel, the more likely it is that public transit will be chosen. All travel times in the following discussion reflect subjective answers by census respondents to the census questionnaire.

The preference for rail travel from Nassau-Suffolk to Manhattan reflected the relatively close mean travel times between rail travel and car use. In 1990, three-quarters of the work trips from Hempstead Town to the midtown Manhattan area between 34th and 59th Streets were made by rail. For these trips, the reported mean travel time was 58.8 minutes for those who drove alone and 68.3 minutes for those who traveled by rail. For those trips from North Hempstead to the midtown area, mean travel time was also relatively close: 58.7 minutes for drivers and 62.0 minutes by rail. For work trips to Queens, however, the time gap between rail and auto was wider and the preference for driving was generally reinforced by the greater availability of parking at the work site.

Table 1-5
Mean Travel Times for Work Trips from Selected Nassau Towns to Selected Zones of Destination in Manhattan, Queens, and Brooklyn, 1990
Auto vs. Rail
(Minutes)

		Mode of Travel*	
Town of Origin	**Zone of Destination**	**Drove Alone**	**Rail**
North Hempstead	34th to 59th St., Manhattan	58.7	62.0
North Hempstead	Below Canal St., Manhattan	58.3	64.5
Hempstead	Below Canal St., Manhattan	57.0	71.0
Hempstead	14th to 34th St., Manhattan	58.4	66.7
Hempstead	34th to 59th St., Manhattan	58.8	68.3
Hempstead	Above 59th St., Manhattan	55.7	67.9
Hempstead	Kennedy Airport-Rockaways	31.1	46.5
Hempstead	LaGuardia Airport-Long Island City	36.8	61.3
Hempstead	Jamaica-Hollis-St. Albans	33.3	47.9
Hempstead	Downtown Brooklyn	50.3	66.2
Hempstead	Bay Ridge-Borough Park, Brooklyn	47.6	65.2
Oyster Bay	Below Canal St., Manhattan	65.2	73.5
Oyster Bay	34th to 59th St., Manhattan	67.6	75.4
Oyster Bay	LaGuardia Airport-Long Island City	45.7	68.1

*Note: These travel times were reported by census respondents and reflect subjective estimates.
Source: 1990 Census Transportation Planning Package.

Journey-to-Work Trips From New York City to Nassau-Suffolk

The number of work trips from New York City to Nassau-Suffolk increased substantially during the 1980's largely because of job growth on Long Island. Many of the new

jobs were back office clerical jobs that drew upon the large clerical workforce residing in adjacent Queens County. The continuing loss of manufacturing jobs in New York City also made Nassau-Suffolk an increasingly important source of jobs for New York City's resident blue-collar labor force.

In 1990, more than 66,000 reverse commuter work trips were made from Queens to Nassau-Suffolk. There were also 12,300 from Brooklyn and 8,600 from Manhattan. Approximately 87% of the reverse travelers worked in Nassau and 13% were employed in Suffolk. Between 1980 and 1990, the largest numerical increase in reverse work trips, 15,000, occurred between Queens and Nassau.

Table 1-6
Number of Reverse Journey-to-Work Trips
1980, 1990

	County of Destination								
	Nassau			Suffolk			Total		
County of Origin	1980	1990	Net Change	1980	1990	Net Change	1980	1990	Net Change
Manhattan	3,488	6,923	+3,435	1,046	1,697	+651	4,534	8,620	+4,086
Queens	43,544	58,565	+15,021	4,542	7,710	+3,168	48,086	66,275	+18,189
Brooklyn	7,008	10,080	+3,072	1,394	2,253	+859	8,402	12,333	+3,931
Total	54,040	75,568	+21,528	6,982	11,660	+4,678	61,022	87,228	+26,206

Source: 1980 and 1990 Census Transportation Planning Packages.

The largest group of reverse work trips came from eastern Queens, primarily from Queens Village-Glen Oaks, Laurelton-Springfield Gardens and Bayside-Little Neck. These zones abut the Nassau County line. About 43% of travelers from Brooklyn originated in the Bay

Ridge-Borough Park section of southwestern Brooklyn. Two-thirds of the reverse work trips from Manhattan originated in the area above 59th St.

Table 1-7
The Leading Zones of Origin for Work Trips From Queens to Nassau-Suffolk, 1990

Travelers to Nassau			Travelers to Suffolk		
Zone	**Rank**	**No. of Commuters**	**Zone**	**Rank**	**No. of Commuters**
Queens Village-Glen Oaks	1	11,747	Flushing	1	989
Laurelton-Springfield Gardens	2	6,271	Forest Hills-Kew Gardens	2	954
Forest Hills-Kew Gardens	3	6,191	Laurelton-Springfield Gardens	3	935
Bayside-Little Neck	4	5,492	LaGuardia Airport-LI City	4	809
Flushing	5	5,451	Bayside-Little Neck	5	790
Total		**35,152**	**Total**		**4,477**
Percent of Reverse Work Trips from Queens		**60%**	**Percent of Reverse Work Trips from Queens**		**58%**

Source: 1990 Census Transportation Planning Package.

The largest volume of reverse work trips occurred between eastern Queens and the towns of Hempstead and North Hempstead. More than 5,200 workers traveled from the Queens Village-Glen Oaks area of Queens to the Town of North Hempstead. There were more than 3,700 work trips from the Kennedy Airport-Rockaway Peninsula area to the Town of Hempstead. There were 3,100 work trips from the Jamaica area to the Town of Hempstead.

Table 1-8
Work Trips From Queens to Nassau, 1990
Selected Origins and Destinations

Zone of Origin	Town of Destination	Number of Work Trips, 1990
Queens Village-Glen Oaks	North Hempstead	5,226
Queens Village-Glen Oaks	Hempstead	4,402
Kennedy Airport-Rockaways	Hempstead	3,769
Laurelton-Springfield Gardens	Hempstead	3,239*
Jamaica-Hollis-St. Albans	Hempstead	3,138
Bayside-Little Neck	North Hempstead	3,133
Flushing	North Hempstead	2,705
Forest Hills-Kew Gardens	Hempstead	2,647
Forest Hills-Kew Gardens	North Hempstead	2,542
Woodhaven-Richmond Hills	Hempstead	2,348
Total		**33,149**
Percent of All Reverse Work Trips from Queens to Nassau		**57%**

*Represents an undercount.
Source: 1990 Census Transportation Planning Package.

Most reverse work trips were made by car. However, there was significant use of public transportation from specific zones of origin within New York City. For example, one-third of the work trips from downtown Brooklyn to the Town of North Hempstead were made by rail or subway/rail. Reverse travelers from portions of Queens to the Towns of

Hempstead and North Hempstead made relatively extensive use of public buses. Approximately 30% of travelers from Jamaica to the Towns of Hempstead and North Hempstead used buses as did 34% of travelers from the Kennedy Airport-Rockaway area to the Town of Hempstead. There was also significant carpooling from portions of Queens and Brooklyn to the Towns of Oyster Bay and Babylon. Approximately 34% of travelers from the LaGuardia Airport-Long Island City area to the Town of Oyster Bay carpooled as did 53% of those traveling from Forest Hills-Kew Gardens to Babylon and 31% of those traveling from Flatbush-Canarsie to Babylon.

Table 1-9
The Proportion of NYC Reverse Work Trips By Bus, Rail, Subway or Carpooling, by Town of Destination, 1990

	Town of Destination									
	No. Hempstead		Hempstead		Oyster Bay		Babylon		Huntington	
Zone of Origin	B,R,S	C	B,R,S	C	B,R,S	C	B,R,S	C	B,R,S	C
Manhattan: Above 59th St.	**12%**	**10%**	**44%**	**11%**	**27%**	**15%**	**28%**	**22%**	**52%**	**5%**
Queens: Bayside-Little Neck	**9**	**12**	**4**	**16**	**2**	**11**	**0**	7	**9**	**11**
Queens Village-Glen Oaks	9	13	8	13	4	7	0	15	0	7
Flushing	13	11	11	10	8	18	5	27	2	11
Laurelton-Springfield Gardens	NA	NA	19	15	25	18	NA	NA	NA	NA
Kennedy Airport-Rockaways	NA	NA	38	16	2	19	NA	NA	NA	NA
LaGuardia Airport-LI City	16	19	29	15	5	34	43	11	5	22
Woodhaven-Richmond Hill	8	13	15	15	11	26	24	18	6	17
Jamaica-Hollis-St. Albans	36	19	36	10	15	12	NA	NA	19	18
Forest Hills-Kew Gardens	17	18	26	10	8	21	3	53	14	14
Jackson Hts.-Elmhurst-Corona	15	12	19	12	4	26	12	27	4	21
Brooklyn: Flatbush-Canarsie	**NA**	**NA**	**26**	**14**	**14**	**25**	**23**	**31**	**NA**	**NA**
Downtown Brooklyn	35	13	52	12	23	23	NA	NA	NA	NA
Bay Ridge-Borough Park	21	21	27	14	11	19	18	27	7	16

B,R,S - Bus, Rail, Subway
C - Carpooling
NA - Not available due to the small sample size
Source: 1990 Census Transportation Planning Package

Public transit was at a clear disadvantage relative to the car for reverse work trips because reported mean travel times for public transit were much longer. For those traveling between Bayside-Little Neck and the Town of North Hempstead, mean travel times were reported to be 21 minutes for those who drove alone, 32 minutes for those traveling predominately by rail and 44 minutes for those traveling predominately by bus. The trip from Laurelton-Springfield Gardens to North Hempstead entailed a reported 28 minutes by car, 40 minutes by rail and 56 minutes by bus. The trip from Long Island City to North Hempstead was reported to have averaged 38 minutes by car, 74 minutes by rail and 69 minutes by bus. The trip from Manhattan north of 59th Street to North Hempstead required a reported 45 minutes by car versus 68 minutes by rail.

An Economic Profile of Work Trips Between Long Island And New York City and Between New York City and Long Island

As the foregoing analysis indicates, the work trip linkages between Nassau-Suffolk and New York City remain extremely important. The Long Island economy also remains significantly dependent on earnings generated by New York City jobs. Moreover, it continues to utilize the skills of New York City residents. *Therefore, there is also a strong economic justification for enhancing commuter rail service between the New York City core and the Nassau-Suffolk suburbs in both directions. Particularly important is direct rail access to the east side of the midtown Manhattan business district, the area between 34th and 59th Streets east of Fifth Avenue. There were an estimated 27,000 worktrips into this area from Nassau-Suffolk in 1990.*

Industry of Employment. Approximately 30% of the Nassau-Suffolk residents making work trips to New York City worked in one of the service industries, 14% were employed in finance and additional 14% were employed in trade. The industry profile of Nassau residents differed slightly from that of Suffolk residents. Approximately 32% of the Nassau residents but only 22% of the Suffolk residents worked in services. By contrast, a higher proportion of Suffolk residents were employed in government, transportation and construction.

The industry of employment of Long Island residents making work trips to New York City varied by county of work within New York City. For example, half of all travelers to Manhattan worked in finance and services, primarily professional services. By contrast, fewer than 5% of those making work trips to Queens worked in finance. Nassau residents making work trips to Queens worked in services, primarily health and educational services, 35%, and transportation, 20%. Suffolk residents making work trips to Queens also worked in transportation, 30%, and services, primarily educational services, 20%.

Table 1-10
Industry of Nassau-Suffolk Residents Making Work Trips to New York City, 1990

Industry	Nassau Residents		Suffolk Residents		Nassau-Suffolk Residents	
	No.	% of Total	No.	% of Total	No.	% of Total
Agriculture & Mining	610	0.3	245	0.3	855	0.3
Construction	12,214	6.1	6,858	8.8	19,072	6.9
Manufacturing	19,721	9.8	7,298	9.4	27,019	9.7
Transportation	19,688	9.8	11,406	14.6	31,094	11.2
Communications, Utilities	10,463	5.2	5,211	6.7	15,674	5.6
Trade	29,492	14.7	8,887	11.4	38,379	13.8
Wholesale	11,718	5.8	4,186	5.4	15,904	5.7
Retail	17,774	8.9	4,701	6.0	22,475	8.1
Finance, Insurance, Real Estate	28,597	14.3	11,259	14.4	39,856	14.3
Services	65,004	32.5	16,996	21.8	82,000	29.4
Public Administration	14,684	7.3	9,815	12.6	24,499	8.8
Total	**200,473**	**100.0**	**77,975**	**100.0**	**278,448**	**100.0**

Source: 1990 Census PUMS File

New York City residents employed in Nassau worked principally in services, 35%, and trade, 24%. Those employed in Suffolk generally worked in services, 27%, manufacturing, 25%, or trade, 23%. Whereas 32% of reverse travelers to Suffolk worked in either manufacturing or construction, the leading goods-producing industries, only 18% of those reverse travelers to Nassau worked in one of these industries. This industry distribution reflects the growing service orientation of the Nassau County economy and the fact that Long Island's manufacturing base is now concentrated in Suffolk.

Table 1-11
Industry of New York City Residents Making Worktrips to Nassau-Suffolk, 1990

Industry	Employed in Nassau		Employed in Suffolk		Employed in Nassau-Suffolk	
	No.	% of Total	No.	% of Total	No.	% of Total
Agriculture & Mining	442	0.5	89	0.7	531	0.5
Construction	3,112	3.9	975	7.5	4,087	4.4
Manufacturing	11,183	14.0	3,225	24.6	14,408	15.4
Transportation	4,460	5.6	495	3.8	4,955	5.3
Communications, Utilities	1,298	1.6	413	3.1	1,711	1.8
Trade	18,987	23.7	3,076	23.4	22,063	23.7
Wholesale	3,848	4.8	1,129	8.6	4,977	5.4
Retail	15,139	18.9	1,947	14.8	17,086	18.3
Finance, Insurance, Real Estate	10,302	12.8	979	7.5	11,281	12.1
Services	28,374	35.4	3,586	27.3	31,960	34.4
Public Administration	2,008	2.5	282	2.1	2,290	2.4
Total	**80,166**	**100.0**	**13,120**	**100.0**	**93,286**	**100.0**

Source: 1990 Census PUMS File

The foregoing statistics confirm that the industry profile of travelers from Nassau-Suffolk to New York City was perceptibly different from that of travelers from New York City to Nassau-Suffolk. Approximately 17% of the New York City-bound travelers worked in transportation, communications and utilities as compared with only 7% of the reverse travelers. Fewer than 14% of the New York City-bound travelers worked in wholesale and retail trade as compared with 24% of the reverse travelers. Almost 9% of the New York City-bound travelers but fewer than 3% of the reverse travelers worked in public sector jobs.

Occupations. In 1990, almost 23% of the Nassau-Suffolk residents employed in New York City were executives or managers, 18% worked in a professional specialty occupation, 13% were salespersons, 13% were administrative support (clerical) workers, and 12% were precision production (skilled craft) workers. Proportionately more Nassau than Suffolk residents worked as executives, managers or professionals -- 43% versus 33%. Proportionately more Suffolk than Nassau residents had a blue-collar occupation -- 26% versus 17%.

Occupational profiles varied with the specific county of destination within New York City. Almost 30% of Nassau-Suffolk travelers to Manhattan were executives or managers as compared with only 16% of travelers to Queens and 18% of travelers to Brooklyn. Approximately 40% of all Nassau-Suffolk residents employed in Brooklyn and Queens were blue-collar or service workers as compared with only 19% of those traveling to Manhattan.

Table 1-12
Occupations of Nassau-Suffolk Residents Employed in New York City, 1990

	Nassau Residents		Suffolk Residents		Nassau-Suffolk Residents	
Occupation	**No.**	**% of Total**	**No.**	**% of Total**	**No.**	**% of Total**
Executive, Managerial	47,438	23.7	16,226	20.8	63,664	22.9
Professional Specialty	39,599	19.7	9,621	12.3	49,220	17.7
Technicians	6,345	3.2	2,827	3.6	9,172	3.3
Sales	27,156	13.5	8,270	10.6	35,426	12.7
Administrative Support, Clerical	27,683	13.8	9,392	12.0	37,075	13.3
Service	17,779	8.9	11,257	14.5	29,036	10.4
Protective Service	9,870	4.9	8,336	10.7	18,206	6.5
Other Service	7,909	4.0	2,921	3.8	10,830	3.9
Farming, Forestry, Fishing	598	0.3	164	0.2	762	0.3
Precision Production Workers	20,463	10.2	12,650	16.2	33,113	11.9
Machine Operators, Assemblers	3,385	1.7	1,664	2.2	5,049	1.8
Trans., Material Moving Occs.	6,065	3.0	3,902	5.0	9,967	3.6
Handlers, Helpers	3,962	2.0	2,002	2.6	5,964	2.1
Total	**200,473**	**100.0**	**77,975**	**100.0**	**278,448**	**100.0**

Source: 1990 Census PUMS File

Approximately 29% of the New York City residents employed in Nassau-Suffolk were executives, managers or professionals, 20% were employed in the administrative support occupations, 13% were sales persons, 13% were service workers and 21% were blue-collar workers. Proportionately more of those employed in Suffolk were blue-collar workers and proportionately more of those employed in Nassau were administrative support workers. Approximately 27% of reverse travelers employed in Suffolk were blue-collar workers as compared with only 20% of the reverse travelers employed in Nassau. Some 21% of the New York City residents employed in Nassau worked in an administrative support occupation as compared with only 10% of the New York City residents employed in Suffolk.

Table 1-13
Occupations of New York City Residents Employed in Nassau-Suffolk, 1990

Occupation	Employed in Nassau		Employed in Suffolk		Employed in Nassau-Suffolk	
	No.	% of Total	No.	% of Total	No.	% of Total
Executive, Managerial	10,638	13.3	2,193	16.7	12,831	13.8
Professional Specialty	11,593	14.5	2,362	18.0	13,955	15.0
Technicians	2,866	3.6	531	4.1	3,397	3.6
Sales	10,678	13.3	1,776	13.5	12,454	13.4
Administrative Support, Clerical	17,172	21.4	1,328	10.1	18,500	19.8
Service	10,785	13.4	1,269	9.7	12,054	12.9
Protective Service	1,451	1.8	244	1.9	1,695	1.8
Other Service	9,334	11.6	1,025	7.8	10,359	11.1
Farming, Forestry, Fishing	490	0.6	67	0.5	557	0.6
Precision Production Workers	7,223	9.0	1,744	13.3	8,967	9.6
Machine Operators, Assemblers	3,685	4.6	994	7.6	4,679	5.0
Trans., Material Moving Occs.	2,572	3.2	396	3.0	2,968	3.2
Handlers, Helpers	2,464	3.1	460	3.5	2,924	3.1
Total	**80,166**	**100.0**	**13,120**	**100.0**	**93,286**	**100.0**

Source: 1990 Census PUMS File

The occupational profiles of New York City-bound travelers differed from those of reverse travelers in several key respects. Whereas 41% of the New York City-bound travelers were executives, managers or professionals, only 29% of the reverse travelers worked in one of these occupations. Whereas only 13% of the New York City-bound travelers were administrative support (clerical) workers, almost 20% of the reverse travelers worked in an administrative support occupation.

Earnings. Approximately 30% of Nassau's employed residents made work trips to New York City in 1990 but accounted for more than 42% of the aggregate 1989 earnings of all employed Nassau residents. Fewer than 12% of employed Suffolk residents traveled to New

York City jobs but generated more than 18% of the 1989 aggregate earnings of Suffolk residents. *The statistics confirm that Nassau-Suffolk residents remain disproportionately dependent on earnings from New York City jobs.* In effect, Nassau-Suffolk "exports" high level managers and executives to New York City where they hold relatively high paying jobs in finance and professional services. At the same time Nassau-Suffolk imports lower wage occupational groups. This partially explains why there are a high proportion of rail commuters in the New York City-bound direction and a lower proportion of rail commtuers coming from New York City.

Table 1-14
Aggregate Earnings of Nassau-Suffolk Residents, by Place of Origin, 1989

	Nassau Residents		Suffolk Residents	
	Aggregate Earnings	**% of Total**	**Aggregate Earnings**	**% of Total**
Earned in Nassau	$10,847,620,000	46.5	$ 3,546,750,000	17.4
Earned in New York City	9,823,082,500	42.2	3,718,140,000	18.2
Earned in Suffolk	1,679,377,500	7.2	12,571,057,500	61.6
Earned Elsewhere	952,687,500	4.1	581,990,000	2.8
Total	**$23,302,767,500**	**100.0**	**$20,417,937,500**	**100.0**

Source: LIRPB based on data from 1990 census PUMS File.

The proportion of employed Nassau-Suffolk residents holding New York City jobs declined slightly between 1980 and 1990 -- from 32.2% to 30.4% in Nassau and from 13.9% to 11.8% in Suffolk. *It is noteworthy, however, that Nassau-Suffolk's earnings dependence on New York City did not diminish during the 1980s.* New York City jobs generated an estimated 41.8% of the aggregate earnings of Nassau residents in 1979 and 42.2% of their aggregate

earnings in 1989. New York City jobs generated 19.6 of the aggregate 1979 earnings of Suffolk residents and 18.2% of their aggregate earnings in 1989.

Table 1-15
Nassau-Suffolk's Earnings Dependence on New York City, 1979, 1989

		Nassau	Suffolk
Number Employed in New York City:	1989	201,130	78,291
	1979	200,819	74,756
Percent Employed in New York City:	1989	30.4	11.8
	1979	32.2	13.9
Percent of Aggregate Earnings from NYC Jobs:	1989	42.2	18.2
	1979	41.8	19.6

Source: LIRPB computations based on 1980 Census Transportation Planning Package; 1990 Census PUMS File.

The foregoing analysis makes it clear that a vibrant New York City economy remains essential to Long Island's continued economic health.

The Pattern of Work Trips to Major Long Island Employment Centers

This study identified thirty-two major employment centers on Long Island. The number of work trips terminating in each center ranged from a low of about 11,250 for Glen Cove to a high of almost 71,000 for the Garden City area, which encompasses the Mineola government center, Adelphi University, the retail complex at Roosevelt Field and the Mitchel

Field business complex. The Garden City area was the largest single employment center in Nassau County. Other large employment centers included the Lake Success/New Hyde Park area, 31,000 work trips, the Jericho/Hicksville area, 32,000 work trips, the Great Neck area, 24,000 work trips, Hempstead Village, 22,000 work trips, and the Syosset/Woodbury area, 24,000 work trips. In Suffolk. almost 39,000 work trips terminated in the Melville area in 1990. Other large employment complexes included the Huntington area, 29,000 work trips, the Hauppauge area, 33,000 work trips, the Brentwood/Central Islip area, 30,000 work trips, the Stony Brook area, 24,000 work trips, and the Bohemia/Lake Ronkonkoma area, 26,000 work trips.

The automobile was the predominant mode of travel for work trips terminating at Long Island's major employment centers. Approximately 87% of the work trips terminating at the Nassau employment centers were made by car, 1% by rail and 4% by bus. Moreover, of those who traveled by car, 88% drove alone and only 12% carpooled. Workers traveling to Freeport Village were characterized by the highest percentage of carpooling, 16%. Workers traveling to the Syosset/Woodbury and Bethpage areas were characterized by the lowest incidence of carpooling, 9%. Approximately 93% of the work trips to Suffolk employment centers were also made by car, 1% by bus and fewer than 1% by railroad. Of those who traveled by car, 89% drove alone and 11% carpooled. The incidence of carpooling ranged from a low of 8% for those traveling to the Huntington area to a high of 14% for those traveling to the Deer Park and Stony Brook areas.

Table 1-16
Number of Worktrips Terminating at Major Nassau-Suffolk Employment Centers
By Mode of Travel, 1990

Nassau County	Reported Mode of Travel						Percent			
Employment Center	**Auto**	**Rail**	**Bus**	**Subway**	**Other***	**Total**	**Auto**	**Rail**	**Bus**	**Sub-way**
1. Great Neck Area	20,010	428	1,173	328	2,039	23,978	83	2	5	1
2. Port Washington Area	12,147	133	354	112	1,554	14,300	85	1	2	1
3. Manhasset Area	14,432	173	474	74	877	16,030	90	1	3	**
4. Lake Success/New Hyde Park Area	28,025	224	1,160	238	1,467	31,114	90	1	4	1
5. Mineola Village	16,113	347	624	115	1,028	18,227	88	2	3	1
6. Westbury Area	17,407	117	619	74	1,136	19,353	90	1	3	**
7. Garden City Area	56,978	1,954	4,558	4,127	3,345	70,962	80	3	6	6
Garden City Village	21,233	217	925	45	1,124	23,544	90	1	4	**
Remainder	35,745	1,737	3,633	4,082	2,221	47,418	75	4	8	9
8. Hempstead Village	17,125	155	1,474	131	2,696	21,581	79	1	7	1
9. East Meadow Area	13,124	68	427	21	1,290	14,930	88	**	3	**
10. Valley Stream Area	14,282	236	890	144	1,346	16,898	85	1	5	1
11. Five Towns Area	13,033	308	1,052	229	1,693	16,315	80	2	6	1
12. Rockville Centre Village	11,174	240	531	127	1,227	13,299	84	2	4	1
13. Oceanside Village	13,416	114	655	23	960	15,168	88	1	4	**
14. Freeport Village	10,518	112	854	56	1,498	13,038	81	1	7	**
15. Glen Cove City	9,990	42	134	17	1,070	11,253	89	**	1	**
16. Syosset/Woodbury Area	22,904	139	82	55	854	24,034	95	1	**	**
17. Jericho/Hicksville Area	28,963	405	705	46	1,606	31,725	91	1	2	**
18. Plainview Area	16,528	61	213	38	876	17,716	93	**	1	**
19. Bethpage Area	15,871	56	122	0	408	16,457	96	**	1	0
20. Farmingdale Area	27,843	160	460	51	1,278	29,792	93	1	2	**
Nassau Part	6,553	65	93	24	715	7,450	88	1	1	**
Suffolk Part	21,290	95	367	27	563	22,342	95	*	2	**
Total Worktrips	**379,883**	**5,472**	**16,561**	**6,006**	**28,248**	**436,170**	**87**	**1**	**4**	**1**

Table 1-16 (Cont'd)

Suffolk County

Employment Center	Reported Mode of Travel						Percent			
	Auto	Rail	Bus	Subway	Other*	Total	Auto	Rail	Bus	Sub-way
1. Huntington Area	25,990	219	368	140	1,929	28,646	91	1	1	**
2. Melville Area	37,706	128	359	48	682	38,923	97	**	1	**
3. Deer Park Area	14,026	106	163	55	684	15,034	93	1	1	**
4. Babylon Area	15,869	124	257	72	1,294	17,616	90	1	1	**
5. Amityville Area	13,835	107	184	34	1,179	15,339	90	1	1	**
6. Hauppauge Area	31,365	74	434	61	695	32,629	96	**	1	**
7. Brentwood/Central Islip Area	27,619	89	408	32	1,901	30,049	92	**	1	**
8. Bay Shore Area	14,308	70	262	0	1,022	15,662	91	**	2	0
9. Stony Brook Area	21,174	83	278	14	2,378	23,927	88	**	1	**
10. Port Jefferson Area	11,229	37	111	6	562	11,945	94	**	1	**
11. Patchogue Area	14,816	81	110	5	783	15,795	94	1	1	**
12. Bohemia/Lake Ronkonkoma Area	24,695	45	363	0	861	25,964	95	**	1	0
Total Worktrips	**252,632**	**1,163**	**3,297**	**467**	**13,970**	**271,529**	**93**	**	**1**	**

*Includes taxi, bicycle, walked, etc.
**Less than 0.5%
Source: 1990 Census Transportation Planning Package.

Given these statistics, it is clear that much remains to be done to implement carpooling and to encourage the use of public transportation for worktrips to Long Island's major employment centers. The thirty-two major employment centers identified in this report accounted for approximately two-thirds of Long Island's jobs in 1990. Therefore, any significant shift to public transportation or carpools for work trips to these employment centers would go a long way toward mitigating traffic congestion on Long Island.

Occupation and Industry of Employment of Workers at Major Employment Centers. The occupational and industry mix of employment varied by employment center.

Some Long Island employment centers were characterized by a relatively high proportion of executive, managerial and professional workers. The Bethpage and Manhasset areas in Nassau and the Stony Brook, Melville and Hauppauge areas in Suffolk employed a disproportionate number of executives, managers and/or professionals. Other employment centers were clearly oriented toward blue-collar or service workers. This was true of Freeport Village, Glen Cove City, the Farmingdale area, the Brentwood/Central Islip area and the Bay Shore, Deer Park and Amityville areas. Approximately 44% of work trips to Freeport Village were made by blue-collar or service workers; 42% of the work trips to the Brentwood/Central Islip area involved blue-collar or service workers. By contrast, 39% of work trips to the Bethpage area involved executives, managers or professionals as did 38% of all work trips to the Stony Brook area.

Long Island has increasingly become a service-oriented economy. In 1990, 37% of those employed at the Nassau employment centers and 33% of those employed at the Suffolk employment centers worked in one of the service industries. Some 15% to 16% of all worktrips to the Nassau-Suffolk employment centers involved retail workers. Approximately 14% of those traveling to the Nassau employment centers and 21% of those traveling to employment centers in Suffolk worked in manufacturing.

Table 1-17
Occupations of Workers at Major Nassau-Suffolk Employment Centers
(Percents)

Nassau County

	Occupations									
Employment Center	Executive, Managerial	Professional Specialty	Technical & Related	Sales	Clerical	Service	Skilled Craft	Other Blue Collar	All Other	Total Work Trips
1. Great Neck Area	18	17	3	13	19	14	8	6	2	23,978
2. Port Washington Area	15	13	3	13	22	11	11	10	2	14,300
3. Manhasset Area	13	25	5	16	20	12	5	4	**	16,030
4. Lake Success/ New Hyde Park Area	17	18	5	14	25	7	8	6	**	31,114
5. Mineola Village	13	23	5	8	25	10	7	9	**	18,227
6. Westbury Area	14	11	3	17	22	12	9	12	**	19,353
7. Garden City Area	13	13	4	14	25	13	7	9	2	70,962
Garden City Village	14	15	3	15	29	14	5	5	**	23,544
Remainder	14	12	5	14	22	12	8	11	2	47,418
8. Hempstead Village	15	19	3	9	23	15	8	7	1	21,581
9. East Meadow Village	12	21	4	13	21	18	6	5	**	14,930
10. Valley Stream Area	14	13	3	21	21	10	8	9	1	16,898
11. Five Towns Area	11	17	2	18	18	14	10	9	1	16,315
12. Rockville Centre Vill.	13	22	3	13	21	15	6	7	**	13,299
13. Oceanside Village	14	15	3	15	24	10	8	11	**	15,168
14. Freeport Village	13	12	2	12	16	13	13	18	1	13,038
15. Glen Cove City	13	17	4	10	14	17	13	11	1	11,253
16. Syosset/Woodbury Area	17	15	6	15	23	10	8	6	**	24,034
17. Jericho/Hicksville Area	15	12	3	14	27	9	10	9	1	31,725
18. Plainview Area	14	15	5	15	22	9	9	11	**	17,716
19. Bethpage Area	15	24	6	5	16	7	15	12	**	16,457
20. Farmingdale Area*	14	10	3	13	19	7	13	20	1	29,792
Nassau Part	12	15	2	15	20	10	11	14	1	7,450
Suffolk Part	15	8	3	13	18	6	14	22	1	22,342
Total Worktrips (No.)	**62,658**	**68,654**	**16,501**	**59,372**	**95,558**	**48,575**	**38,624**	**41,734**	**4,494**	**436,170**
Total Worktrips (%)	**14**	**16**	**4**	**14**	**22**	**11**	**9**	**9**	**1**	**100**

*Includes parts of Nassau and Suffolk Counties.

Table 1-17 (Cont'd)

Suffolk County

Employment Center	Occupations: Executive, Managerial	Professional Specialty	Technical & Related	Sales	Clerical	Service	Skilled Craft	Other Blue Collar	All Other	Total Work Trips
1. Huntington Area	11	17	3	18	18	13	10	8	2	28,646
2. Melville Area	18	14	5	12	28	6	7	10	**	38,923
3. Deer Park Area	15	12	4	10	19	7	16	16	1	15,034
4. Babylon Area	10	14	2	17	18	15	11	11	2	17,616
5. Amityville Area	12	15	3	12	18	13	12	14	1	15,339
6. Hauppauge Area	18	14	5	10	23	7	10	13	**	32,629
7. Brentwood/Central Islip Area	10	16	3	11	17	15	12	15	1	30,049
8. Bay Shore Area	11	12	2	16	17	9	13	19	1	15,662
9. Stony Brook Area	10	28	7	8	17	14	7	7	2	23,927
10. Port Jefferson Area	9	22	3	12	19	19	10	6	**	11,945
11. Patchogue Area	11	16	2	16	23	15	9	7	1	15,795
12. Bohemia/Lake Ronkonkoma Area	14	12	6	9	20	8	14	16	1	25,964
Total Worktrips (No.)	**35,545**	**42,760**	**11,026**	**33,867**	**55,152**	**29,769**	**28,240**	**32,376**	**2,794**	**271,529**
Total Worktrips (%)	**13**	**16**	**4**	**13**	**20**	**11**	**10**	**12**	**1**	**100**

**Less than 0.5%
Source: 1990 Census Transportation Planning Package

There was considerable variation between employment centers in terms of their industry mix of employment. For example, half of all jobs in the Manhasset, East Meadow and Rockville Centre areas were service jobs, principally in health services, and two-thirds of all jobs in the Stony Brook area were service jobs, primarily in educational services. The Westbury, Valley Stream and Five Towns areas in Nassau and the Huntington, Babylon, Bay Shore and Patchogue areas in Suffolk contained a disproportionate number of retail jobs. The Bethpage,

Plainview, Glen Cove and Freeport areas in Nassau and the Deer Park, Hauppauge, Bohemia/Ronkonkoma and Farmingdale areas in Suffolk were characterized by a disproportionate number of wholesale jobs. The Lake Success/New Hyde Park, Oceanside, Syosset/Woodbury and Melville areas had a disproportionate number of jobs in finance, insurance and real estate.

Mode of Travel, Travel Times and Work Trip Distances. The overwhelming use of automobiles for work trips to Long Island's major employment centers reflects the fact that reported travel times by car were much shorter than reported travel times by public transportation. The reported time disadvantage of public transportation on Long Island is compounded by the fact that most of those employed in Long Island's employment centers lived relatively close to their jobs. In this situation, the walk or drive to a bus or rail station, which entails a change of travel modes, becomes particularly onerous. It's just simpler to get into the car and drive to work.

It would appear difficult, if not impossible, to induce workers who live close to their Long Island work sites to switch to public transportation. However, carpools may be an attractive option for this group of travelers. Employment centers such as Manhasset, Lake Success/New Hyde Park, Mineola, Garden City, Bethpage, Farmingdale, Melville, Deer Park and Hauppauge draw their workforce from relatively long distances. They may be prime targets for efforts to induce a switch to public transportation and to organize carpools, institute compressed work weeks, and implement telecommuting programs.